A CRITICAL ANALYSIS OF THE EFFECT ON ENVIRONMENT SUSTAINABILITY BY RESTAURANT INDUSTRY

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ABSTRACT

The hospitality industry today has been recognized as one of the largest industries of the world and a restaurant is considered as one of the prime fields which brings quite a great deal of profit and as well as client satisfaction. Moreover, to achieve these goals, restaurant owners are following practices, which can be harmful for the environment. The purpose of the research is to discuss the impact of restaurant industry in sustainability of environment. This review paper is based on primary data like observations, interviews, and secondary data, which is mentioned in various reports, newspapers, journals, books and websites. This research paper starts with the different negative impact of the restaurant industry on the environment and end with how we can reduce these impacts to sustain the environment. Sustainability practices will help the restaurant for reducing operating costs and save environment from toxins and adulterants, which are involved in food making process.

Keywords: Sustainability of environment, Harmful, Food production industries, Restaurant Garbage.

1. Introduction

Restaurant is a commercial place where people used to visit to spend quality time with their family, friends and colleagues and enjoy their favorite meals along with some entertainment. The restaurants are classified as QSR (quick service restaurant), Theme based, Café, multi-cuisine etc. The main objective of the restaurant is not only providing food & beverages to the customers, but, also to give them a memorable experience so that they are motivated to visit again and also to recommend it to others. The food services and restaurant industry plays a vital role in elevating country's economic growth, (Kant, 2019) This is the reason that they are continuously working on new innovations to attract the consumers (Rawal, Dani, 2019).

Every restaurant has majorly three departments. First one is the food production department which is responsible for preparing food by cooking, combining and transforming raw ingredients to make it a presentable and a tasty dish. Second is the service, which is responsible for serving food and beverage to the consumers and third is housekeeping whose role is to maintain cleanliness and hygiene in the restaurant. Preparing, presenting and serving a dish is an art for which every restaurant requires various equipment that are made from different types of metals like iron, stainless steel, aluminum. While some crockery and cutlery are made from precious materials such as silver coated stainless steel, EPNS (electro plated nickel silver), and others cooking equipment that are operated from electricity, coal, gases and water.

The restaurant business is one of those that use a lot of electricity, as well as a lot of water, cleaning equipment and disposables such as to-go containers. This large and reckless use of conventional resources makes the restaurant industry to release huge amount of carbon emission that pollutes the environment while maintaining the ambience for their customers (Szuchnicki, 2010). Besides, the restaurant industry is a huge generator of food waste and other resources, resulting in substantial greenhouse gas (GHG) pollution, material wastage, and huge massive investment costs (Kim, et.al., 2020). As per an article on Times Now, Harshita Tyagi reported that the wastage of Indian restaurants is far more than what the whole of United Kingdom consume (Tyagi, 2020). In fact, it can be seen in streets, garbage bins and landfills. However, only few studies have described the food ethics and environment friendly restaurant business practices. Hence, study that is more elaborate is required towards sustainable approaches to restaurant industry as food is the lifeline for the human beings and their physical and mental activity. Food has its special ethics that is largely dependent on climate, culture, age, and geographical area and to maintain the food ethics we need to follow ecological practices at our restaurant to attract the guests.

2. Theoretical Foundations

Food ethics is an interdisciplinary area of food handling, dispersion, readiness and utilization that

offers ethical knowledge and guidance on human conduct. Food ethics are depending on age, gender, culture and religion (Cohen, 2020). Food consumption research is primarily concerned with determining the factors that influence different food-related habits, such as liking, desire, choice and intake. Despite the fact that many researchers used these words interchangeably, there are certain distinctions. 'The palatability or enjoyment gained by tasting a given food is what food liking applies to' (Mac, et.al., 2012). For spending time and enjoy different varieties of food people used to go restaurant and pay a huge amount. Restaurant Industry is being recognized as an important section in any country economy. If we say about Indian restaurant market (organized and unorganized), it is estimated at INR 3,37,500 crores in 2017 and is predicted to grow at 10% over the next 5 years to reach INR 5,52,000 crores by 2022 (FICCI Report, 2017).

Researchers emphasize that the industry should promote eco-friendly and responsible business practices to support sustainability, as the hospitality sector that includes hotels and restaurants, contributes extensively to climate change by generating pollution, wasting energy and by using plastics and other harmful detergents and chemicals and so on (Batat, 2020).Consumers who are concerned for the environment are calling for the hospitality and restaurant sector to adopt and promote sustainable and responsible business strategies. Despite of the rising number of studies that have explored the sustainable approach in the hospitality sector, there are still limited research work that focuses on the sustainability of food consumed in restaurants.

Restaurant sustainability programs have become more relevant as consumers increasingly getting dependent on food eaten away from home, along with a need for more green operations. One of the main issues of the present decade is environmental safety (Baloglu, et.al., 2020). Since it has a vital link to human lives, Pollution is often detrimental to human beings, so a safe human life always needs an atmosphere free from pollution. The major prerequisite of a stable human life is environmental safety. In each region, numerous organizations are working to safeguard the environmental.

Green operation means reducing the negative impact on environment which starts from growing or manufacturing the food until it is consumed (Trafialek, et.al.,2020).

2.1 Impact of growing agriculture on environment

Growing agricultural needs have a long-term impact on the environment. Urbanization is consuming agricultural land, and to find agricultural land humans are infiltrating the natural vegetation.

2.1.1 Degradation of land

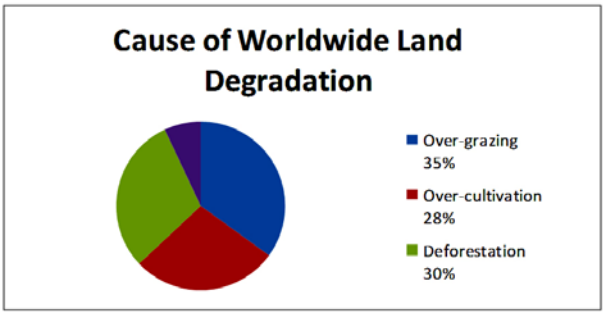

Fig. 1: Source: Band 7.5 Academic IELTS report sample

There is tremendous pressure to meet the demand and for this various means are being used to increase the output that leads to degradation of land. The various causes land degradation is being the deficiency and imbalance in soil nutrients, decline of organic composition and landslides. (Hamdy, Aly, 2012). Other major causes being over-grazing, over-cultivation & deforestation (Fig 1. Source: Band 7.5 Academic IELTS report sample)

2.1.2 Biodiversity

There has been major concern raised over the loss of vegetative cover such as grasslands and forest tree species, as well as the disappearance of wild plants, birds and insects. (Rathore, Jasrai, 2013). As per the Living Planet report of 2020, there is a drop of 68% since 1970 among the population size of reptiles, fish, amphibians, birds and mammals. WHO has also emphasized on usefulness of biodiversity on human health? https://www.who.int/news-room/fact-sheets/detail/biodiversity-and-health.

2.1.3 Pesticide usage

Usage of pesticides is increasing for getting better quantity of crops but quality is going down and even these are harmful for birds, insects and animals (Mahmood, et.al., 2016). Below chart shows the increase in consumption from 2000 to 2019.

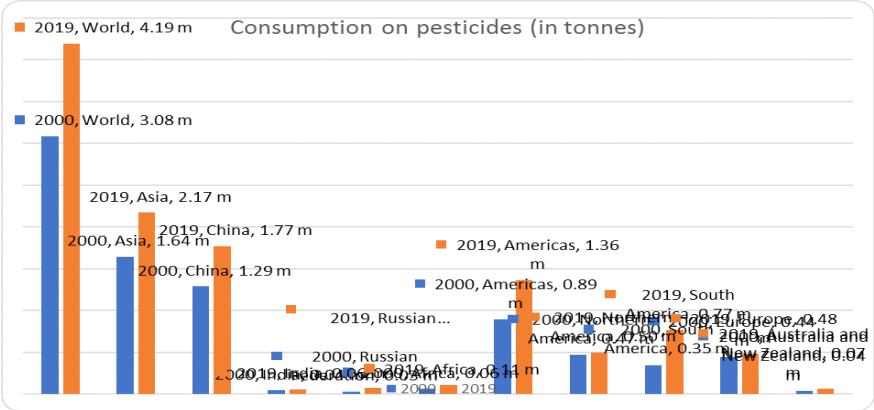

Fig 2: Source: UN Food & Agriculture Organization (FAO)

2.1.4 Agricultural waste

The release of carbon-di-oxide, methane, nitrogen oxide and carbon monoxide into the atmosphere as a result of the combustion of those by-products causes breathing issues in both animals and human. (Kumar, Joshi, 2013).

2.2 Food Cooking Impact on Environment

Food production necessitates a significant amount of energy and resources. As a result, there is a strong need to concentrate on circular manufacturing in order to achieve long-term food security targets.

2.2.1 Air Pollution

Air pollution is one of the major threats for environment that directly impacts quality of life of residents of the cities. Wood and charcoal is a one of the oldest man-made fuel and restaurant uses the same for cooking food which is the primary source of CO_2. Large amounts of oils and other organic matter are being used in restaurants, which are aerosolized and ventilated out as a kitchen exhaust. The organic aerosol emitted during the cooking process is released into the urban atmosphere by this exhaust. (El-Sharkawy, Javed, 2018)

2.2.2 Plastic Pollution

The majority of raw foods are available in plastic packaging, both if it is perishable or non-perishable and most of the plastic is not biodegradable. Instead, they degrade into even smaller fragments known as “microplastics”, which are borne by the wind and water and dispersed in the atmosphere, extending plastic waste to any part of the globe, from the sky to the stomachs of whales, to the dirt on the farms where our livestock are raised. (Dani, et.al., 2021). The below figure shows the most used plastic items by clients in restaurant (Jenkins et al. 2017)

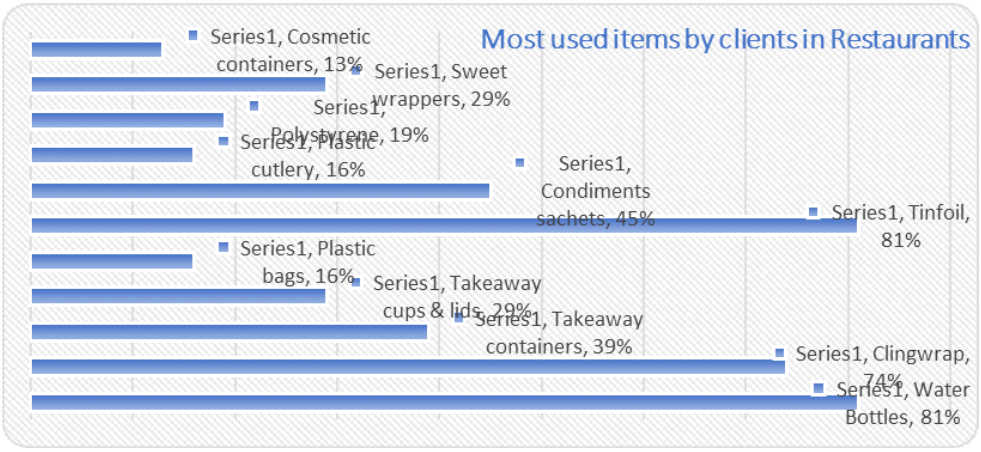

Fig 3 Source: Jenkins et al. 2017

2.2.3 Water Pollution

Many cleaning products contain substances that are toxic to humans, as well as other animals and plants in the environment. Cleaning materials and raw foods wastes are disposed off into lakes and rivers, releasing a slew of chemicals. Many of them can survive in the environment and make their way through the food chain. The water wastes from restaurants have high quantity of suspended solids, grease & oil that are quite harmful for humans and environment and increases the load of water treatment plants. (Singh et al, 2014)

2.2.4 Depletion of natural resources

Cooking causes harm to natural resources and the excessive use of these resources results in there depletion. Usage of wood, coal etc. at the time of preparation of food causes there reduction hence disturbing a sustainable approach. The natural resources & mineral resources depletion have been the reason of economic downfall. (Nawaz et.al, 2019)

2.3 Food and Beverage service Impact on Environment

2.3.1 Noise Pollution

Noise pollution is also one of the major concerns for environmentalist as it poses harmful environmental risks to human health, having a massive environmental impact and causing significant harm to animals. According to WHO above 65 dB is considered as noise pollution and open F&B outlets produce more than100dB of noise. (Iberdrola, 2021)

2.3.2 Garbage

One of the major issues from restaurants is the waste, which is of two types: solid waste and liquid waste.

Solid waste includes food, paper, plastic disposable and liquid waste generates while washing utensil, floor, hands which contains suspended solids, oil and grease, leftovers, Biochemical and Chemical wastes.(Singh, et.al., 2014)

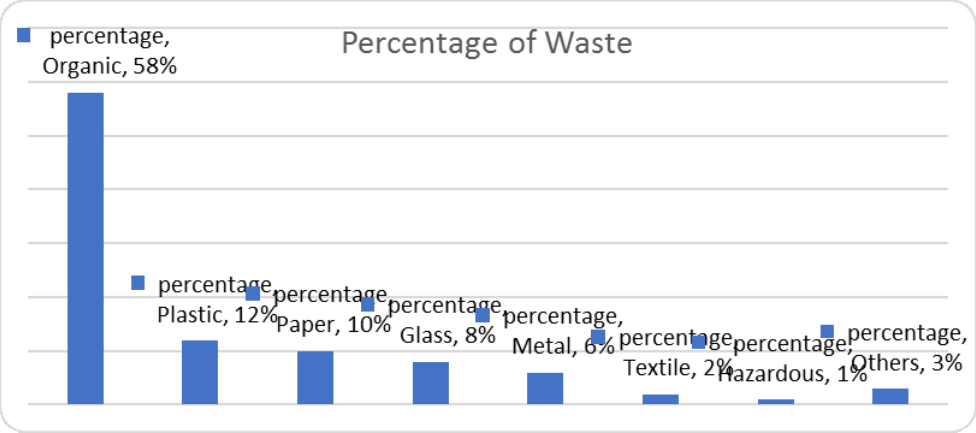

Fig 4 Source: Chaabane et al. 2018

2.3.3 Energy Consumption

To attract the customers, restaurants consume a lot of electricity through air conditioners, lighting and other decorative. Burning fossil fuel emits carbon dioxide which may contribute in climate changes and depletion in ozone. (Dani, et.al., 2021)

2.3.4 Indoor Air Pollution

Sources emitting chemicals, gases or pollutants into the air contribute to Indoor air pollution and it further degrades the quality of indoor air. There are different sources of indoor air pollution in any restaurants like tobacco products, building materials, furnishings, cleaning products, air fresheners, central heating and cooling systems etc. which can cause serious health risk and infected diseases. (CPSC, 2021)

3. Research Methodologies

This review paper is based on primary data like observations, interviews with restaurant staff, and secondary data which is mentioned in various reports, newspapers, journals, books and websites. The data was extensively analyzed and discussed which further led us to the final consideration.

4. Discussions of Results

Land erosion can be managed by combining organic and inorganic fertilizer applications, using drip irrigation and reducing the use of heavy tillage implements (Toor, et.al., 2020). Watershed management programmes have a great impact on

restoration of degraded lands. Rain water harvesting can help storing water and restoring the ground water level. Today, a lot of money is going into 'wastelands growth 'and watershed programs, but they need to be even more in the hands of local people, with a focus on local strategies based on indigenous awareness, planting or conservation of local plants and exposure to indigenous farming practices. (Dwivedi, 2021) Economic environment for farmers can be improved by developing market infrastructure, correcting price incentives and by encouraging rural income and diversification. (Hamdy, Aly, 2014)

Instead of using pesticides and fertilizersmade from chemical, wemay go for biopesticides like waste products of animals (like cows & buffalo) or manure made from plants and we can also do the crop rotation by rotating crops each year or intercropping is also a great idea(growing two or more crops in close proximity is intercropping). By doing this we can cultivate organic product which is not harmful for human body, birds and animals.

Agricultural wastes are non-product outputs of manufacturing and distribution that can produce material that are beneficial for environment. They are the residues from the growing and processing of raw agricultural goods. Cultivation, animal processing and aquaculture are only a handful of the agricultural operations that produce these residues. (Wang, et.al. 2016)

Reduce the chemical use and buy organically/sustainably grown foods or beverages for the kitchen. List these specific products andreplace. Restaurant can use coal which is processed from coal clean technology. This technology removes harmful elements from the coal and facilitatesits economical and environmentally satisfactory usage. (Chang S, et.al.2016) coal contain dozen of elements which are contributors of global warning, identify such pollutants and reduce and remove these from coal, Such as various gases (COx' NOx' SOx' CH etc.), tar, soot, ash, many different liquid and solid wastes, as well as toxic polycyclic aromatic hydrocarbons and trace elements.(Vamvuka, 1999)

Try to avoid plastic packed food and find the products, which are sold in a paper, cardboard andcontainer. For perishable ingredients like vegetables, dairy products and meat, buy directly from the warehouse. By doing this you can avoid frozen food, which is not good for human health and the restaurants, and will get fresh ingredients ata low cost. Store dry food in stainless steel containers and refill condiments &sauces in a glass or ceramic containers. Avoid plastic material for any storage. Instead of Clingfilm use lids to cover the pots. For packaged food delivery restaurants should you recyclable/bio-degradable packaging. Plastic cups, plates, bowls, spoons and straws can all be replaced by those made up of environmentally safe/recyclable or bio-degradable materials.

Use cleansing agents that don't contain toxic chemicals or that are biodegradable. The water waste generated through cleaning process should be treated before releasing it to any outlet or stream. One should ensure that the organic waste generated during the cleaning and washing process should be kept separate and disposed off separately, so that it is not mixed with any of the cleansing agent that can harm the nature. Detergents & other cleaning chemicals can be replaced with organic and naturally made cleaning agents.

Fuel efficient cooking methods to be implemented that could help in energy wastage and pollution. Restaurants can use coal processed from coal clean technology that removes harmful elements from coal and decrease the emission of harmful gases. Innovations are required in inventing fuel efficient technology and equipment that has far less impact on environment and at the same time retain the quality of food cooked and its taste. Solar cooker and solar water heaters are some such examples that can add to environment friendly measures.

Restaurants should take care of the noise pollution they are producing. They should keep their sound under check and well under the limit of 65db. Live band and instrumental music is part of many restaurants and all restaurants can follow these instead of heavy sound speakers and systems.

The garbage should be disposed off well. Prior to that emphasis should be on minimization of wastage. Biodegradable and non-biodegradable waste should be kept separate and disposed off accordingly. Non Bio-degradable and toxic waste should be treated well and contact with water should be avoided.

There should be minimization of electricity consumption. Energy efficient bulbs, tubes and other electric appliances should be used. Alternate source of energy such as water, wind & sun can be tapped and if feasible can be applied in restaurants. Solar electricity should be preferred wherever possible and restaurants can use their terrace space for Solar Panels. In Ladakh and other Himalayan

regions these are widely being used by the hotels. Electricity should be turned off when not in use.
Indoor air pollution should be checked and controlled on regular basis. Avoid using paints, room fresheners, cleaning sprays with harmful chemicals. Can also switch to organic room fresheners like lemon grass and fresh flowers. Condiments in plastics should be avoided. Plastic water bottles to be banned and one should switch to clean RO water that is publicly visible and accessible for self-service as well.

5. Final Considerations

Hospitality Industry being one of the largest sectors in the world has a great impact of its actions. Being one of the largest sectors, it has greater responsibility towards environmental concerns. It can largely contribute to the efforts on safeguarding environment and promoting sustainability. As suggested, restaurants can apply various measures that can remove or at least minimize the negative impact on the environment. There is a further scope of research and innovations in technology as well as restaurant equipment that could be applied in the restaurant for minimizing the negative impact. Inorganic can be replaced by organics, chemicals, toxins and other non-biodegradable products/items can be replaced by biodegradable products/items. Natural sources of energy should replace fossil fuels, coal and other sources.

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